

Managing DAOs for collective and distributed architectural design projects: The case of the ArchiDAO Evolo Skyscraper Design Competition

TU Delft Delft University of Technology

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"in my country, most of the offices are like, **you're not allowed to make changes**, you have to be like an operator. They will give you the plan and you have to work from to 8 hours 12 a day. For a person like me, I'm not going to understand what is life. **What is it about architecture that I love?"**

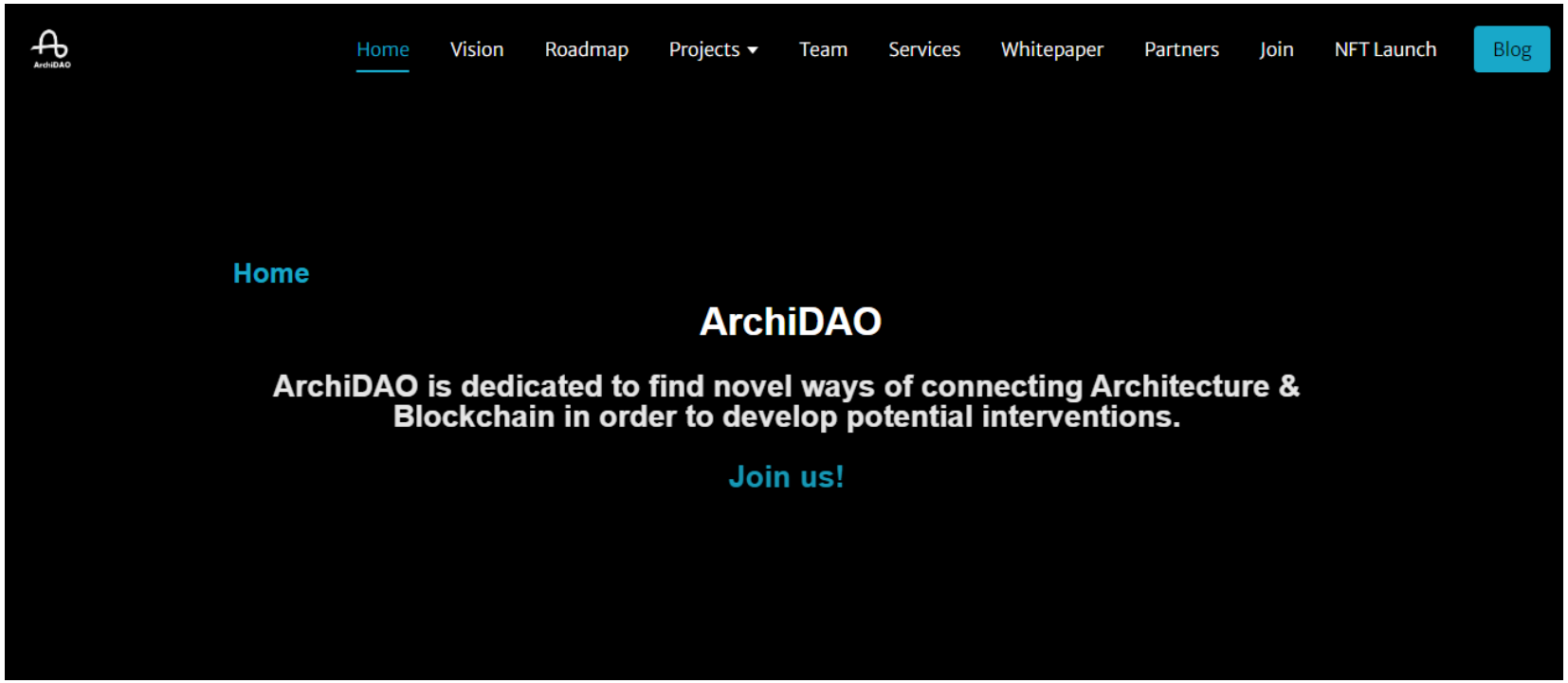
"I'm a **young person,** and it is interesting for me to collaborate with **different people** to understand how they operate in different situations in the projects, to know them"

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First DAO by architects for architects

Transform architectural practices through innovative project management

Over 500 members on Discord



Global contest encouraging innovative skyscraper design.

Focus on novel technologies and sustainable urban solutions.



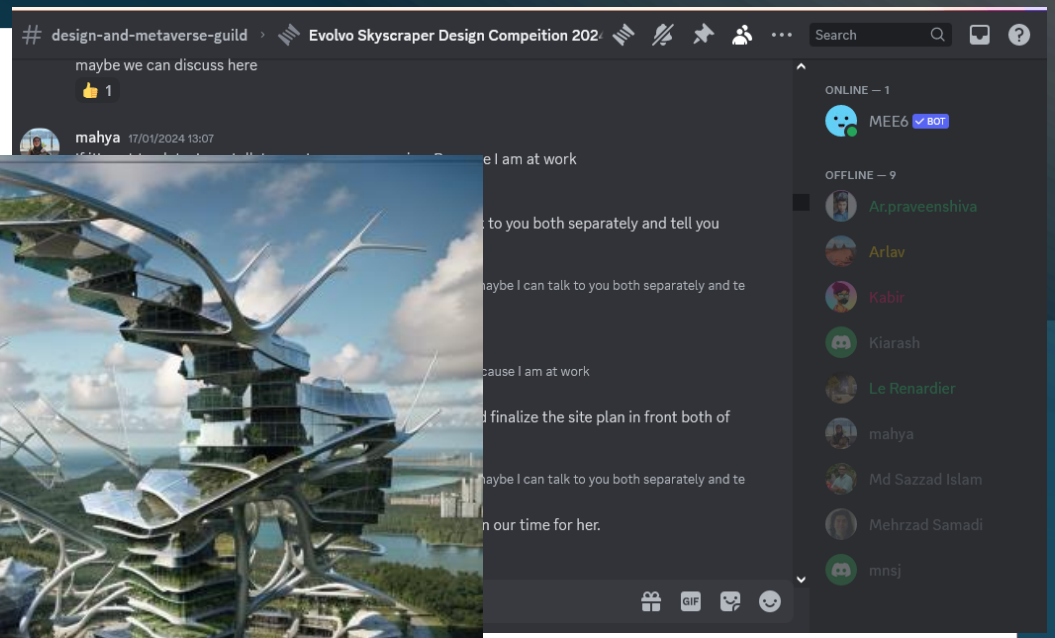
Multidisciplinary team from Iran and India

Volunteer basis

Weekly Zoom meetings,
use of Discord and Telegram

Challenges: Time constraints, technical issues, and coordination problems







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The team

The Architecture Engineering and Construction, (AEC) industry has traditionally operated in a top-down manner, **however** technological advancements, particularly blockchain, present opportunities for more decentralized approaches.

Problem statement: the lack of studies on management and governance frameworks for collaborative and distributed architectural design within DAOs.

How can DAOs facilitate the effective management of collective and distributed architectural design projects?

- What does leadership look like for a DAO?
- What motivates architects to join a DAO?
- How do DAOs influence project outcomes in architectural design?

Extended single case study with mixed methods:

- literature review
- ethnographic observation
- semi-structured interviews

    2 rounds with each of five members
    1 round with two ArciDAO founders

Extended single case study with mixed methods: Literature review, ethnographic observation, and semi-structured interviews.

Qualitative research: Allows deep contextual understanding and captures dynamic social processes.

Extended single case method and support from case study methodology emphasizes the depth and contextual understanding

(Siggelkow, 2007). (Burawoy, 1998)

Research methodology

Decentralized Autonomous Organizations (DAOs) | Blockchain

DAOs: Organizations governed by smart contracts on a blockchain.

Operate without centralized control, enabling decentralized decision-making.

"DAOs are entities that run autonomously using code and consensus mechanisms, reducing the need for traditional management structures"

Benefits: Transparency, security, and democratization of decision-making.

Challenges: Technical complexity, regulatory issues, and the need for broad community engagement.

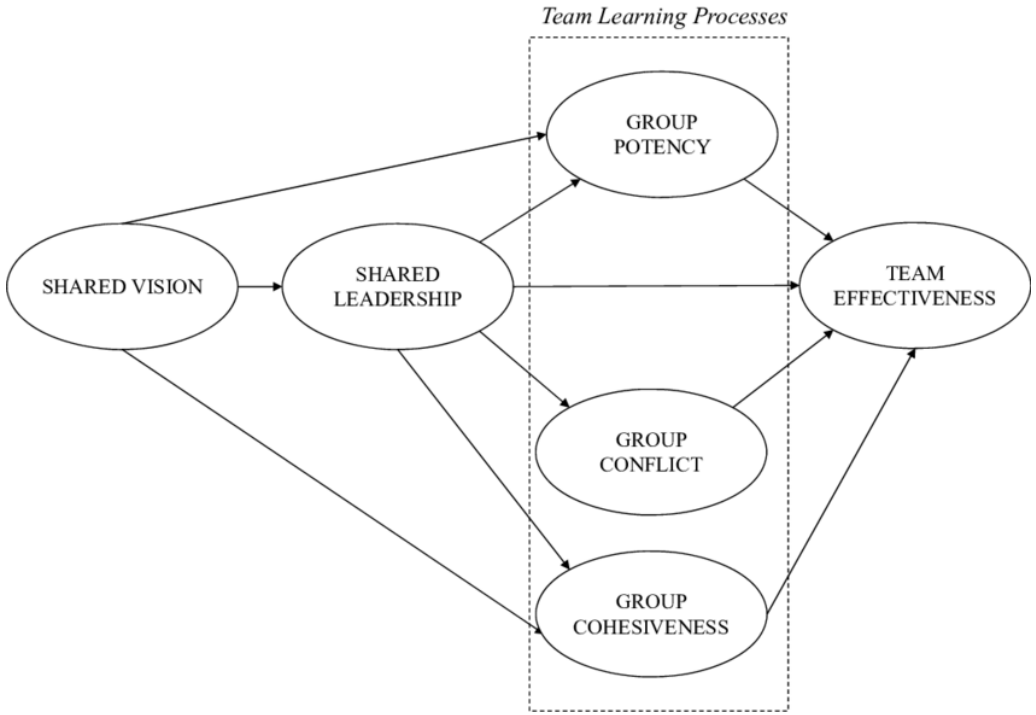
Santana & Albareda, 2022 | Wang et al., 2019

Leadership| Hierarchy

Shared Leadership and Its Importance
Leadership roles distributed among team members rather than centralized.
Reduces competition, decreases failure anxiety, fosters collaborative environment

Transition from Traditional to Shared Leadership
Traditional top-down leadership vs. emerging shared and co-leadership models.
Need for flexible leadership models to handle complex decision-making

Implications for DAOs
How shared leadership aligns with the decentralized nature of DAOs.
Potential to enhance decision-making processes and project outcomes in the AEC industry.



Hooker & Csikszentmihalyi, 2003 | Greenberg & Walt, 2001 | Fletcher & Käufer, 2003 | Somboonpakorn, A., & Kantabutra, S. (2014)

Young Collectives

Flexible Structure
“Collectives stand out for their multidisciplinary and horizontal approach"

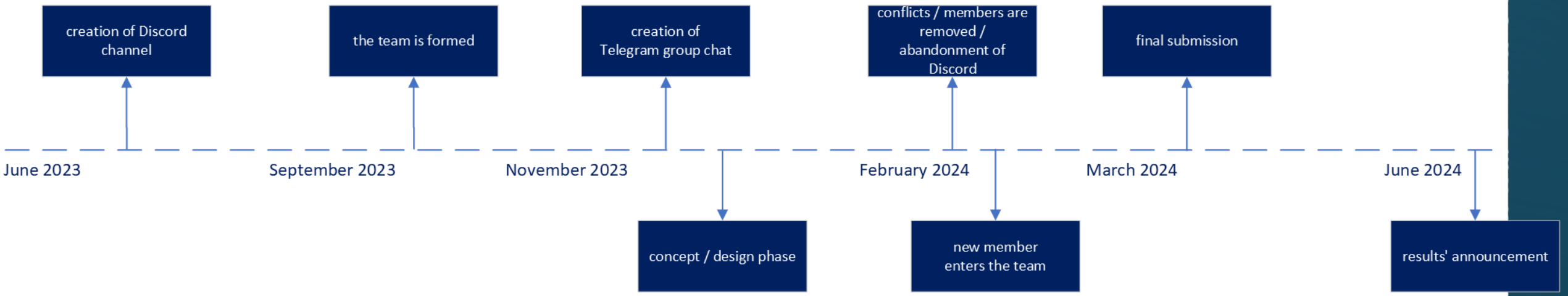
Collaborative Decision-Making
"Input is usually sought from all members, making the process more democratic than traditional hierarchical models“

Innovation and Creativity

Network-Based Communication

Moderate Transparency and Peer-Based Accountability
"Accountability in young collectives is usually maintained through peer pressure and mutual respect"

Lima & Moreira, 2023 | Antonini, Gaspari & Visconti, 2021


creation of Discord channel
the team is formed
creation of Telegram group chat
conflicts / members are removed / abandonment of Discord
final submission
June 2023
September 2023
November 2023
February 2024
March 2024
June 2024
concept / design phase
new member enters the team
results' announcement

Timeline

Category	Codes	Quotes
Collaboration	help, teamwork, collaboration	
Communication	communication, meetings, effective, international	
Conflict	conflict, differences, stress, relationship,accountability	
Leadership	decision, leadership, rules	
Management	managing, process, progress, deadline, delay, conflict, stress, relationship, leadership, freedom, roles	
Motivation	motivation, pressure, feelings	
Tools	tools, metaverse, blockchain	
Community	community	
Skill Development	skills, mistake	

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*“But you know, even when working with strangers, **the honesty about time and skills is the most important thing**. If you're not honest about these two facts, you will ruin the whole process.”*

*“**He became inactive suddenly**… So this is one of the problems **where blockchain could play a more effective role**.”*

Differences and stress: Conflicts arose due to different opinions, lack of accountability and peaked before the deadline

Communication problems: Lack of effective communication channels that led to misunderstandings and disputes

Findings -Conflicts

*“**There will always be hierarchy**. The question is how. How do you decide on this hierarchy, and what nature does it have afterward?”*

*“But perhaps the **most direct form of democracy doesn't happen by voting on everything**. Maybe it happens by reaching a consensus on everything”*

Leadership was a major challenge in the team, as there was need for clearer role distinction

Leadership was earned and decision-making was collective

Findings - Leadership

*“I think in the design part there could be much more effective way of **coordinating and communicating**.”*

*“So if you want to approach some architects to collaborate, you have to really **go deeply into the blockchain and how the decentralization work**, and it's hard to present it in an easy form to somebody who knows nothing about blockchain.”*

What is a DAO without the integration of Blockchain?

Was it a DAO project or a project from young collectives?

Findings – Integration of Blockchain



TECHNICAL ENHANCEMENTS



INCREASE BLOCKCHAIN INTEGRATION: IMPLEMENT BLOCKCHAIN FOR TRANSPARENT TASK MANAGEMENT AND IMMUTABLE RECORD-KEEPING



ADOPT ADVANCED TASK MANAGEMENT TOOLS: USE TOOLS TAILORED TO DAO OPERATIONS FOR STREAMLINED TASK ASSIGNMENTS AND REAL-TIME UPDATES.



DEVELOP EFFECTIVE REWARD SYSTEMS: CREATE TRANSPARENT AND FAIR REWARD MECHANISMS USING NFTS OR BLOCKCHAIN TOKENS LINKED TO MEASURABLE CONTRIBUTIONS



IMPLEMENT ANONYMIZED VOTING SYSTEMS: USE BLOCKCHAIN-BASED VOTING TO ENSURE ANONYMITY AND FAIRNESS IN DECISION-MAKING

Management and Organizational Improvements

- **Define clear roles and responsibilities**: Establish distinct roles within the DAO and utilize blockchain for identity management.
- **Ensure consistent participation and engagement**: Implement regular check-ins and use incentives to maintain active involvement
- **Improve coordination within decentralized teams**: Employ digital tools that support seamless communication and coordination.

- **Single Case Study Focus:** Findings may not be generalizable to all DAOs or industries
- **Participant Engagement:** Challenges with inconsistent participation and engagement
- **Technological Integration**: Limited integration of blockchain within ArchiDAO
- **Temporal Constraints**: Limited timeframe for the study and restricted observation of long-term impacts and outcomes
- **Geographical and Cultural Context**: Study conducted within a specific geographical and cultural context

RQ1: What does leadership look like for a DAO?
Leadership in DAOs deviates significantly from traditional hierarchical models, embracing shared and distributed leadership practices.

RQ2: What motivates architects to join a DAO?
Architects are motivated to join DAOs by a combination of professional growth opportunities, collaborative work environments, and the potential for innovation.

RQ3: How do DAOs influence project outcomes in architectural design?
The distributed nature of DAOs allows for more flexible and adaptive project management, which is particularly beneficial in the dynamic field of architectural design.

MRQ: How can DAOs facilitate the effective management of collective and distributed architectural design projects?
Potential of DAOs to transform the management of collective and distributed architectural design projects, by embracing shared leadership, fostering collaborative environments, and leveraging blockchain technology.

Conclusions

- **Multiple Case Studies**: Conducting research across multiple DAOs
- **In-Depth Technological Exploration**: Investigating DAOs with advanced blockchain integration can provide a deeper understanding of how blockchain technology impacts organizational processes
- **Exploring Young Collectives**: Further research on young collectives in the AEC industry can provide valuable insights into how these groups operate
- **Impact on Stakeholders**: Investigating the impact of DAOs on different stakeholders, including employees, clients, and the broader community

Recommendation for future research

“So I think the **real winner** of this project is myself”



“*What didn't you do to bury me / but you forgot that I was a seed*”
- Dinos Christianopoulos

“*Και τι δεν κάνατε για να με θάψετε / όμως ξεχάσατε πως ήμουν σπόρος*” – Ντίνος Χριστιανόπουλος

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Thank
you!